We Claim:

1. A system for the active electronic control of biological reactions in a multiple site environment comprising:

an array of unit cells, the cells being arranged in rows and columns,

a row selector external to the array and operatively connected to the array for selective addressing of rows of the array,

a column selector external to the array and operatively connected to the array for providing an indication of output values and for selective addressing of the columns of the array,

an input adapted to receive unit cell selection information, the input coupled to the row selector and the column selector,

current circuitry for receiving an input current and coupling a signal to the unit cells for current generation thereof, and

power source connectors adapted to receive power, the connectors supplying power to the unit cells.

2. The system of claim 1 for the active electronic control of biological reactions wherein the row selector includes a memory.

3. The system of claim 2 for the active electronic control of biological reactions wherein the memory is a shift register memory.

4. The system of claim 3 for the active electronic control of biological reactions wherein the shift register is in a by one configuration.

5. The system of claim 1 for the active electronic control of biological reactions wherein the row selector includes a decoder.

6. The system of claim 1 for the active electronic control of biological reactions wherein the column selector includes a memory.

7. The system of claim 6 for the active electronic control of biological reactions wherein the memory is a shift register memory.

8. The system of claim 7 for the active electronic control of biological reactions wherein the shift register memory is in a by one configuration.

9. The system of claim 7 for the active electronic control of biological reactions wherein the shift register memory is in a by four configuration.

10. The system of claim 1 for the active electronic control of biological reactions wherein the column selector includes a decoder.

11. The system of claim 1 for the active electronic control of biological reactions further including a variable current waveform generator.

12. The system of claim 1 for the active electronic control of biological reactions further including a current mirror system for receipt of current at a first value and outputting current at a second value.

13. The system of claim 12 for the active electronic control of biological reactions wherein the second value is smaller than the first value.

14. The system of claim 13 for the active electronic control of biological reactions wherein the second value is at least twenty times less than the first value.

15. The system of claim 1 for the active electronic control of biological reactions further including multiplexers for the alternative input of row and column selection.

16. The system of claim 1 for the active electronic control of biological reactions wherein the input current comprises a current waveform.

17. The system of claim 16 for the active electronic control of biological reactions wherein the current waveform is a static, direct current waveform.

18. The system of claim 16 for the active electronic control of biological reactions wherein the current waveform is a square wave.

19. The system of claim 18 for the active electronic control of biological reactions wherein the current waveform is an asymmetric square wave.

20. The system of claim 16 for the active electronic control of biological reactions wherein the current waveform is a sinusoidal wave.

21. The system of claim 16 for the active electronic control of biological reactions wherein the current waveform is a sawtooth wave.

22. A system for the selective provision of current in an active biological matrix device adapted to receive a conductive solution including charged biological materials, comprising:

an array of unit cells, each unit cell including a row contact and a column contact, row lines, the row lines being coupled to the row contacts of the array,

a row selector, the row selector being coupled the row lines to provide a row select voltage.

column lines, the column lines being coupled to the column contacts of the array,

a column selector, the column selector being coupled to the column lines to provide more than two column voltage states on the column lines,

the unit cells being coupled to a supply and to an electrode, the row select voltage and the column voltage states providing a variable current output from the electrode of the unit cell, and

a return electrode coupled to a potential and adapted to contact the conductive solution,

whereby in the presence of the conductive solution current is provided between various unit cells, including the return electrode.

23. The system of claim 22 wherein the return electrode is a unit cell of the array.

24. The system of claim 22 wherein the row selector includes memory.

25. The system of claim 24 wherein the memory includes a shift register memory.

26. The system of claim 24 wherein the shift register memory is in a by one configuration.

27. The system of claim 22 wherein the row selector includes a decoder.

28. The system of claim 22 wherein the column selector includes memory.

29. The system of claim 28 wherein the memory includes shift register memory.

30. The system of claim 29 wherein the shift register memory includes multiple bits per column of unit cells.

31. The system of claim 30 wherein there are at least four bits per column of unit cells.

32. The system of claim 22 wherein each unit cell further includes a

second row contact and a second row line coupled to the second row contact.

33. The system of claim 22 further including a second row selector.

34. The system of claim 22 wherein each unit cell further includes a second column contact and second column line coupled to the second column contact.

35. The system of claim 22 further including a second column selector.

36. A system for the active electronic control of biological reactions in a multiple site environment comprising:

an array of unit cells, the unit the cells being arranged in rows and columns, each unit cell being driven or un-driven;

a first column selector external to the array and operatively connected to the array for providing an indication of first output values to the unit cells operatively connected to selected columns of the array, said first column selector selectively addressing individual columns of the array;

a first row selector external to the array and operatively connected to the array for selectively addressing individual rows of the array;

a second column selector external to the array and operatively connected to the array for providing an indication of second output values to the unit cells operatively connected to selected columns of the array, said second column selector selectively addressing individual columns of the array;

a second row selector external to the array and operatively connected to the array for selectively addressing individual rows of the array; and

wherein each unit cell within the array is driven at one of the first output values, the second output values, or is un-driven.

37. A system according to claim 36, wherein the first column selector has a plurality of states, and wherein each plurality of states produces different first

output values.

38. A system according to claim 37, wherein the plurality of states are voltage states.

39. A system according to claim 38, wherein the plurality of states are positive voltage states.

40. A system according to claim 36, wherein the second column selector has a plurality of states, and wherein each plurality of states produces different second output values.

41. A system according to claim 40, wherein the plurality of states are voltage states.

42. A system according to claim 41, wherein the plurality of states are negative voltage states.

43. A system according to claim 36, wherein the first output values vary as a function of time.

44. A system according to claim 36, wherein the second output values vary as a function of time.

45. A system for the active electronic control of biological reactions in a multiple site environment comprising:

an array of unit cells arranged in rows and columns;

a first column selector external to the array and operatively connected to the array for providing an indication of first output values to the unit cells operatively connected to selected columns of the array, the first column selector selectively addressing the columns of the array;

column lines coupling the first column selector to each unit cell within a column of the array;

a first row selector external to the array and operatively connected to the array for selectively addressing the rows of the array;

row lines coupling the first row selector to each unit cell within a row of the array;

a second column selector external to the array and operatively connected to the array for providing an indication of second output values to the unit cells operatively connected to selected columns of the array, the second column selector selectively addressing the columns of the array;

column lines coupling the second column selector to each unit cell within a column of the array;

a second row selector external to the array and operatively connected to the array for selectively addressing the rows of the array;

row lines coupling the second row selector to each unit cell within a row of the array; and

wherein each unit cell within a single selected column is driven at a value corresponding to the output values of the first column selector, the second column selector, or is un-driven.

46. A system according to claim 45, wherein the first column selector has a plurality of states, and wherein each plurality of states produces different first output values.

47. A system according to claim 46, wherein the plurality of states are voltage states.

48. A system according to claim 47, wherein the plurality of states are positive voltage states.

49. A system according to claim 45, wherein the second column selector

has a plurality of states, and wherein each plurality of states produces different second output values.

50. A system according to claim 49, wherein the plurality of states are voltage states.

51. A system according to claim 50, wherein the plurality of states are negative voltage states.

52. A system according to claim 45, wherein the first output values vary as a function of time.

53. A system according to claim 45, wherein the second output values vary as a function of time.

54. A method of driving an array of unit cells, wherein each unit cell, when driven, is driven at a specific output value, said method comprising the steps of:

addressing at least one column of the array with at least one column selector, the at least one column selector operatively connected to selected columns of the array via column lines;

addressing at least one row of the array with at least one row selector, the at least one row selector operatively connected to the array via row lines for addressing selected rows of the array; and

sending an output value to at least one unit cell addressed by one of the at least one row selectors, the output value being sent by one of the at least one column selectors.

55. A method of selectively controlling the electrical characteristics of an array of individual electrode sites through the use of column and row lines, the method including the steps of:

addressing at least one electrode site within the array, the at least one electrode site addressed via a column selector and a row selector, the column selector operatively connected to selected columns of the array, the row selection operatively connected to selected rows of the array; and

activating the column containing the at least one addressed electrode site with an output value, wherein the at least one addressed electrode site within the column is driven at a value corresponding to the output value on the column.

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